

The effect of husbandry system information on consumer willingness to pay for dairy products from cow-calf-contact systems

Lena Eitelberg, Silke Hüttel, Jeanette Klink-Lehmann and Reinhard Uehleke¹

Abstract – Demand for dairy products from organic and pasture-based husbandry is increasing and segments of consumers who reject certain practices in animal husbandry are growing. Previous studies explored consumer attitudes towards common practices in conventional dairy husbandry, but consumer willingness to pay (WTP) for avoiding contentious practices has not been established. We investigate WTP for dairy products from cow-calf-contact systems, which avoids the common practice of separating the calve from its mother shortly after birth. We compare the effectiveness of three communication strategies to affect consumption values and hypothetical WTP. We randomly assign 1600 participants to one of the three information treatments and a control group. Respondents then state their WTP for dairy products from cow-calf-contact systems in a contingent valuation scenario. The information treatments are expected to increase WTP via their influence on respondents' epistemic, social and emotional consumption values. Our study offers insights for marketers and policy makers to address consumer concerns on animal welfare and support the choice for animal welfare-oriented husbandry. The results also provide a foundation for exploring product- and target group-specific marketing and may guide profitability analysis of adopting cow-calf-contact systems.

INTRODUCTION

In Germany, food retailers are continuously increasing production standards for animal products with the goal to improve animal welfare. Demand for dairy products from organic and pasture-based husbandry systems is growing and reached 11.7% and 4.7%, respectively, in 2020 (MIV, 2021). Still, the dairy sector is subject to public requests to avoid certain production practices. A survey of German supermarket customers revealed that around half of the customers were aware of early cow-calf separation and around 70% of respondents rejected the practice with 25% being undecided (Placzek et al., 2020). A larger online survey found similar rates of rejection of this practice (Busch et al., 2017). The low public acceptance paired with growing evidence on improved calve growth, social competence and stress resilience after late separation (Meagher et al., 2019; Waiblinger et al., 2020) has led to a rising interest in cow-calf-contact (CCC) systems.

So far, consumer studies on the perception of CCC systems have focused on attitudes towards this husbandry system (e.g., Busch et al., 2017; Placzek et al., 2021; Sirovica et al., 2022). However, it remains unknown, whether the unfavorable attitude towards early separation translates into willingness to

pay (WTP) a price mark-up for dairy products from CCC systems to cover increased producer costs. To our knowledge, we are the first to investigate consumer WTP for dairy products from CCC systems.

Therefore, the aim of this study is to develop communication strategies based on the theory of consumption values (Sheth et al., 1991; van Riemsdijk et al., 2017) and test the effectiveness of these strategies for affecting the relevant consumption values and WTP. Since enhancing animal friendly consumption requires large shares of consumers to change their consumption habits, we further examine heterogeneity of responses to the communication strategies by personal values (Sivapalan et al., 2021).

METHODS

The WTP for dairy products from CCC systems is retrieved using an online contingent valuation (CV) survey. We survey 1600 respondents and randomly assign them to one of four information treatments. The field time is planned for end of May 2022. The CV scenario briefly presents the CCC system (Figure 1).

Imagine that in your local supermarkets that you regularly visit, dairy products are offered for which the milk is obtained from the following alternative husbandry conditions:

Instead of separating the calves from their mothers, the so-called cow-calf-contact husbandry is practiced. In this system, the calves stay together with their mother cows for at least three months.

This husbandry system requires investments for adapting stable structures, changes in management, especially more labour input, and more space for the animals. Additionally, around half of the mother cow's milk cannot be sold as long as she feeds the calf. All this increases production costs for farmers.

Figure 1. Contingent valuation scenario - control treatment

The CV scenario is followed by a cheap talk and the payment vehicle is a circular payment card. We apply the budget approach as suggested by Nocella et al. (2010). This way respondents can indicate their WTP in terms of a mark-up on their regular spending for dairy products.

Respondents are randomly assigned to one of the four treatment groups: a control group and three information treatments that are designed to affect the epistemic, social and emotional consumption values, respectively. For example, the epistemic information

¹ Lena Eitelberg (s7leeite@uni-bonn.de) and Jeanette Klink-Lehmann (jeanette.klink@ilr.uni-bonn.de). are from Bonn University, Institute for Food and Resource Economics, Bonn, Germany.
Silke Hüttel (silke.huettel@uni-goettingen.de) and Reinhard Uehleke (reinhard.uehleke@uni-goettingen.de) are from Göttingen University, Department of Agricultural Economics and Rural Development, Göttingen, Germany.

treatment highlights the innovativeness of the CCC system and thus should increase the epistemic consumption value. The social information treatment highlights the large share of consumers that favour late separation in CCC systems. The emotional treatment highlights the possibility for cow and mother to interact with each other. The control group will receive neutral information about the dairy production system (Figure 1) instead of information tailored to the respective consumption values. The items to measure the respective consumption values are based on Sweeney and Soutar (2001) and Hur et al. (2012). The measures for the personal values are based on de Groot and Steg (2008).

RESULTS

We expect the information treatments to affect the respective consumption value and increase WTP. The WTP in the control treatment should be lower than in the information treatments. Comparing the WTP in the three information treatments, it is less clear which treatment yields the largest WTP. Since the cow-calf separation may trigger emotional responses, the emotional treatment could yield the highest WTP. We further may find that the effect of the strategy is moderated by personal values. For example, subjects with pronounced egoistic values may respond stronger to the social information treatment because they may perceive social power and wealth by consuming what others find desirable.

DISCUSSION

The comparison of different communication strategies enabled us to identify promising paths to transfer the negative attitude towards early cow-calf separation into willingness to pay price markups for husbandry systems that avoid this practice. This is relevant to the dairy value chain, since additional production costs must be covered when adopting CCC systems. The moderating effect of personal values for the effect of the information treatments opens up opportunities for individual consumer communication, possibly in connection with retailing of regional food products. (Schütz and Mergenthaler, 2019; Charton-Vachet et al., 2020).

REFERENCES

Busch, G., Weary, D.M., Spiller, A., Keyserlingk, M.A.G. (2017). American and German attitudes towards cow-calf separation on dairy farms. *PloS one* 12(3).

Charton-Vachet, F., Lombart, C., Louis, D. (2020). Impact of attitude towards a region on purchase intention of regional products: the mediating effects of perceived value and preference. *Intl J of Retail & Distrib Mgt* 48(7):707–725.

de Groot, J.I.M., Steg, L. (2008). Value Orientations to Explain Beliefs Related to Environmental Significant Behavior. *Environment and Behavior* 40(3):330–354.

Hur, W.M., Yoo, J.J., Chung, T.L. (2012). The consumption values and consumer innovativeness on convergence products. *Industrial Management & Data Systems* 112 (5): 688–706.

Meagher, R.K., Beaver, A., Weary, D.M., Keyserlingk, M.A.G. von, 2019. Invited review: A systematic review of the effects of prolonged cow-calf contact on behavior, welfare, and productivity. *Journal of dairy science* 102(70):5765–5783.

MIV (2021). Geschäftsbericht 2020/2021, Milchindustrie-Verband e.V., Berlin.

Nocella, G., Hubbard, L., Scarpa, R. (2010). Farm Animal Welfare, Consumer Willingness to Pay, and Trust: Results of a Cross-National Survey. *Applied Economic Perspectives and Policy* 32(2):275–297.

Placzek, M., Christoph-Schulz, I., Barth, K. (2020). Mehr als eine Nische? Untersuchungen zum Potenzial der kuhgebundenen Kälberaufzucht in der Vermarktung von Milch und männlichen Kälbern: Schlussbericht. Thünen-Institut für Ökologischen Landbau.

Placzek, M., Christoph-Schulz, I., Barth, K., 2021. Public attitude towards cow-calf separation and other common practices of calf rearing in dairy farming—a review. *Org. Agr.* 11(1):41–50.

Schütz, K., Mergenthaler, M. (2019). Neue Informations- und Kommunikationstechnologien für regionale Lebensmittel am Point of Sale. Umsetzungsperspektiven für flexible, individuelle Verbraucherinformationssysteme (fiVIS): GIL-Jahrestagung. Wien. 18.02.-19.02.

Sheth, J.N., Newman, B.I., Gross, B.L. (1991). Why we buy what we buy: A theory of consumption values. *Journal of Business Research* 22(2): 159–170.

Sirovica, L.V., Ritter, C., Hendricks, J., Weary, D.M., Gulati, S., Keyserlingk, M.A.G. (2022). Public attitude toward and perceptions of dairy cattle welfare in cow-calf management systems differing in type of social and maternal contact. *Journal of dairy science* 105(4): 3248–3268.

Sivapalan, A., Heidt, T. von der, Scherrer, P., Sorwar, G. (2021). A consumer values-based approach to enhancing green consumption. *Sustainable Production and Consumption* 28:699–715.

Sweeney, J.C., Soutar, G.N. (2001). Consumer perceived value: The development of a multiple item scale. *Journal of Retailing* 77(2):203–220.

van Riemsdijk, L., Ingenbleek, P.T., Houthuijs, M., van Trijp, H.C. (2017). Strategies for positioning animal welfare as personally relevant. *BfJ* 119(9):2062–2075.

Waiblinger, S., Wagner, K., Hillmann, E., Barth, K. (2020). Play and social behaviour of calves with or without access to their dam and other cows. *Journal of Dairy Research* 87(1):144–147.